What is claimed is:

1. An apparatus for cathodic protection in an environment where thin film corrosive fluids are formed, which protects from corrosion an object exposed to the thin film corrosive fluids, by artificially adjusting a potential of the object, the apparatus comprising:

a DC power supply of which cathode is electrically connected to the object to be corrosion-protected; and

an anodic assembly of which anode is electrically connected to the DC power supply;

wherein the anodic assembly includes an insulating filter member through which the corrosive fluids pass and which forms an accommodation space inside the insulating filter member, an anodic member accommodated in the insulating filter member, an electrode lead line which electrically connects the DC power supply to the anodic member, and an absorption conductive member which is accommodated in the insulating filter member to surround the circumference of the anodic member and absorbs the corrosive fluids flowing along an exposed surface of the object to be corrosion-protected.

2. The apparatus of claim 1, wherein the anodic member includes a tubular anodic member arranged in parallel to the exposed surface of the object to be corrosion-protected.

3. The apparatus of claim 2, wherein the anodic member further includes a plate-type anodic member combined with the outer circumference of the tubular anodic member.

4. The apparatus of claim 2, wherein the anodic assembly further includes an engagement combination portion which holds an end of the electrode lead line and is engaged with an inner circumference of

the tubular anodic member so that the end of the electrode lead line contacts the inner circumference of the tubular anodic member.

5. The apparatus of claim 4, wherein the engagement combination portion comprises:

a holder member which supports the end of the electrode lead line and has a large diameter part inserted into an inside of the tubular anodic member so that the end of the electrode lead line contacts the inner circumference of the tubular anodic member, and a small diameter part which has an outer diameter smaller than that of the large diameter part and in which a screw hole is formed;

a diameter-enlarging member which is arranged to move forward and backward to the large diameter part of the holder member on the outer circumference of the small diameter part of the holder member and has a plurality of elastic pieces arranged to be spaced apart from one another in a circumference direction on one of its ends; and

a screw member which is combined with a screw hole of the small diameter member of the holder member wherein the diameter-enlarging member is placed between the screw member and the holder member, enlarges the diameter of the elastic pieces of the diameter-enlarging member by pressing the diameter-enlarging member toward the large diameter part and moving forward when rotating in an engagement direction of the screw hole, and is maintained to contact the inner circumference of the tubular anodic member.

6. The apparatus of claim 1, wherein the anodic assembly further includes an insulating thin plate interposed between the surface of the object to be corrosion-protected and the insulating filter member and in a partial region where a perforated contact hole is formed.

7. The apparatus of claim 1, wherein the anodic assembly further comprises:

a support which is combined with the exposed surface so that the support is stood and arranged on the exposed surface of the object to be corrosion-protected and which supports the anodic member to be spaced apart from the exposed surface; and

an insulating connection member wherein a through hole through which the electrode lead line is passed is formed in a central region of the insulating connection member in a lengthwise direction, and both ends of which are detachably combined with ends of the support and the anodic member .

8. The apparatus of claim 1, wherein the insulating filter member is a non-woven fabric lining, and the absorption conductive member is coke breeze.

9. A method for cathodic protection in an environment where thin film corrosive fluids are formed, which protects from corrosion an object exposed to the thin film corrosive fluids, by artificially adjusting a potential of the object, the method comprising:

providing an anodic assembly having an anodic member that is electrically connected to a DC power supply;

installing the anodic assembly on an exposed surface of the object to be corrosion-protected so that the anodic member is spaced apart from the exposed surface of the object to be corrosion-protected, and electrically connecting a cathode of the DC power supply to the object to be corrosion-protected;

forming a resin coating layer on the exposed surface by coating acid resisting and thermostable resin coating material; and

flowing a current between the anodic member and the cathode.

10. The method of claim 9, wherein a painting layer is further formed between the exposed surface of the object to be corrosion-objected and the resin coating layer.

11. The method of claim 9, wherein the anodic assembly further includes an insulating filter member through which the corrosive fluids pass and which accommodates the anodic member in an accommodation space formed inside the insulating filter member, an electrode lead line which electrically connects the DC power supply to the anodic member, and an absorption conductive member which is accommodated in the insulating filter member to surround the circumference of the anodic member and absorbs the corrosive fluids flowing along an exposed surface of the object to be corrosion-protected, and

further comprising absorbing the corrosive fluids flowing around the exposed surface of the object to be corrosion-protected into the absorption conductive member.

12. The method of claim 9, wherein the object to be corrosion-protected is a duct of desulfurization facilities, and the corrosive fluids are a sulfuric acid solution.

13. The method of claim 9, wherein the resin coating material used for the resin coating layer is fluoric elastoma.